Chemistry 115 Name

Dr. Cary Willard

Quiz 5a (20 points) October 1, 2013

All work must be shown to receive credit. Give answers to the correct number of significant figures. Avogadro’s number = 6.022 x 1023/mol

1. (4 points) Calculate the mass in grams of one atom of molybdenum.
2. (6 points) Glucose has a molecular formula of C6H12O6 and has a molar mass of 180.1 g/mol.
   1. How many molecules of glucose are there in 3.66 x 10−4g of glucose?
   2. How many atoms of carbon are there is 3.56 moles of glucose?
3. (6 points) What is the empirical formula of a compound that is 63.6% nitrogen and 36.4% oxygen?
4. (4 points) Change this word equation into a formula equation and balance it. Show state labels, (*s,l,g,aq*).

Magnesium metal is placed into hydrobromic acid solution, forming hydrogen gas and aqueous magnesium bromide.

Mg*(s)* + 2 HBr*(aq)* 🡪 H2*(g)* + MgBr2*(aq)*

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Quiz 5b (20 points) October 1, 2013

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1. (4 points) Calculate the mass in grams of one atom of chromium.
2. (6 points) Glucose has a molecular formula of C6H12O6 and has a molar mass of 180.1 g/mol.
   1. How many molecules of glucose are there in 8.52 x 10−4 g of glucose?
   2. How many atoms of carbon are there is 5.12 moles of glucose?
3. (6 points) What is the empirical formula of a compound that is 72.02 % manganese and 27.98 % oxygen?
4. (4 points) Change this word equation into a formula equation and balance it. Show state labels, (*s,l,g,aq*).

Lithium metal reacts with oxygen gas to form solid lithium oxide.

4 Li*(s)* + O2*(g)* 🡪 2 Li2O*(s)*

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1. (4 points) Calculate the mass in grams of one atom of titanium.
2. (6 points) Glucose has a molecular formula of C6H12O6 and has a molar mass of 180.1 g/mol.
   1. How many molecules of glucose are there in 9.57 x 10−4 g of glucose?
   2. How many atoms of carbon are there is 2.88 moles of glucose?
3. (6 points) What is the empirical formula of a compound that is 47.2 % copper and 52.8 % chlorine?
4. (4 points) Change this word equation into a formula equation and balance it. Show state labels, (*s,l,g,aq*).

Gaseous sulfur dioxide reacts with oxygen gas to form gaseous sulfur trioxide.

2 SO2*(g)* + O2*(g)* 🡪 2 SO3*(g)*

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Quiz 5d (20 points) October 1, 2013

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1. (4 points) Calculate the mass in grams of one atom of vanadium.
2. (6 points) Glucose has a molecular formula of C6H12O6 and has a molar mass of 180.1 g/mol.
   1. How many molecules of glucose are there in 7.53 x 10−4 g of glucose?
   2. How many atoms of carbon are there is 4.85 moles of glucose?
3. (6 points) What is the empirical formula of a compound that is 51.9 % chromium and 48.1 % sulfur?
4. (4 points) Change this word equation into a formula equation and balance it.

Upon heating, solid lead(IV) oxide decomposed into solid lead(II) oxide and oxygen gas.

2 PbO2*(s)* 🡪 2 PbO*(s)* + O2*(g)*